

REMARKS

Applicant appreciates the time taken by the Examiner to review Applicant's present application. This application has been carefully reviewed in light of the Official Action mailed March 16, 2006. This Reply encompasses a bona fide attempt to overcome the rejections raised by the Examiner and presents amendments as well as reasons why Applicant believes that the claimed invention, as amended, is novel and unobvious over the applied prior art. Accordingly, Applicant respectfully requests reconsideration and favorable action in this case.

Amendment to the Specification

Paragraph [0032] on pages 8-9 of the Specification is amended herein to correct a minor informality error. No new matter is introduced.

Claim Status

Claims 1-12 and 22-34 were pending. Claims -12 and 22-34 were finally rejected. Claims 1-9, 11, 22-24, and 28 are amended herein. Claims 13-21 were cancelled. No claim is newly added. No new matter is introduced. Support for the amendments presented herein can be found in the Specification as originally filed, particularly in paragraphs [0023]-[0027], and FIG. 2. By this Amendment, claims 1-12 and 22-34 are pending.

Rejections under 35 U.S.C. § 101

Claims 1-12 and 22-27 were rejected under 35 U.S.C. § 101. The examiner stated on page 2, paragraph 2, of the Office Action that “claims 1 and 22 still do not provide a true data structure with logical relationships among data elements designed to support specific data manipulation functions. There are no steps specified which produce a real world result.” Applicant respectfully disagrees. As pointed out in the previous reply: 1) claims 1 and 22 recite, among others, a step for the claimed revenue management software program instructions to perform a specific data manipulation function (i.e., a network optimization); 2) claims 1 and 22 specifically define logical relationships between data elements of four data structures; and 3) the claimed data structures support at least one specific data manipulation function and thus are statutorily patentable per *In re Lowry* (citation omitted).

The examiner further stated that the “revenue management software program is merely accessible by the revenue management data model,” *Id.* Applicant respectfully disagrees. Claims 1 and 22 specifically recite, “a generic revenue management data model accessible by a revenue management software program” and not the other way around. As submitted previously, the revenue management software program instructions embodied in a computer-readable medium are operable to: 1) access the generic revenue management data model stored on a tangible storage medium; and 2) perform at least one network optimization thereto so as to generate at least one optimal network revenue management solution – a concrete, tangible, and useful result. Accordingly, withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. § 102

Claims 1-12 and 22-31 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No.6,263,315 ("Talluri"). The rejections are respectfully traversed. Traversal to the rejections will be collectively discussed herein with respect to independent claims 1, 22, and 28.

For a rejection under 35 U.S.C. § 102 to withstand, Talluri must teach every element of claims 1, 22, and 28, see MPEP 2131. Furthermore, Talluri must teach arranging elements in the same way as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). In other words, to anticipate claims 1, 22, and 28, Talluri must teach an invention with identical elements as those recited in claims 1, 22, and 28 and Talluri must arrange those elements exactly the same as recited in claims 1, 22, and 28. Talluri does not whatsoever meet the requirements under 35 U.S.C. § 102(e). The examiner argued on page 3, paragraph 3, of the Office Action that Talluri teaches the claimed terms "demand," "resource," "resource bundle," and "resource bundle to demand link." Applicant respectfully disagrees. Regardless of whether Talluri's teaching on certain terms might appear to be similar to the claimed terms in a general sense, Talluri neither expressly nor inherently describes a generic revenue management data model that encompasses four data structures exactly as recited in claims 1, 22, and 28.

Talluri appears to be concerned with a specific form of output of a revenue management ("RM") network optimization. As mentioned in the previous reply, this output consists of multidimensional lookup tables containing threshold values *only*. Talluri appears to teach using these lookup tables to look up time- and inventory-dependent threshold values. Talluri does not teach how to construct these threshold lookup tables or what data structure might be used to produce them. Those elements cited on page 3, paragraph 3, of the Office Action do not make up a generic RM data model exactly as recited in claims 1, 22, and 28, nor are they structured to perform the same. For example, the examiner contented that Talluri teaches "resource bundle to demand link," citing column 5, lines 53-58, where "the reservation booking system would match the demands with the resources." Applicant respectfully disagrees. Matching demands with resources is not the same as storing a representation of their

logical relationship (i.e., resource bundle to demand link) in a data structure of a generic, industry- and algorithm-independent, RM data structure model. The former does not anticipate the latter. What is more, the former can be done dynamically without the latter and need not be optimal in any sense.

Applicant further disagrees with the examiner's statement on page 5, paragraph 7, of the Office Action, "where the optimization modules of Talluri provide a means for optimizing the price and demand of the airline ticketing system which would in turn optimize revenue and therefore be equivalent as it performs an identical function in substantially the same manner with substantially the same results," citing col. 5, lines 10-15, of Talluri. First, it is respectfully submitted that the doctrine of equivalents arises in the context of an infringement action (MPEP 2186). For a rejection under 35 U.S.C. § 102 to stand, Talluri must teach not an equivalent but an exact, identical invention in as complete detail as is contained in claims 1, 22, and 28. Any feature not directly taught must be inherently present. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). If the teaching does not contain an invention completely identical to the invention claimed in claims 1, 22, and 28, then Talluri does not meet the requirements under 35 U.S.C. § 102.

Second, embodiments of the invention as claimed in claims 1, 22, and 28 are directed to a generic RM data model for solving RM problems. It is possible that some embodiments of the invention could be implemented to solve a specific RM problem related to the allocation of multiple resources for an airline network. For example, one embodiment might be used to generate threshold values and populate Talluri's threshold lookup tables. This could be done using various algorithms applied to the generic RM data model to produce different threshold lookup tables. However, these threshold lookup tables would be the end-result and no further optimization could be applied to these lookup tables.

Third, even assuming that Talluri's airline ticketing system could somehow produce substantially the same results, lacking the particular logical and structural relationship between elements of a generic RM data model as claimed in claims 1, 22, and 28, Talluri's airline ticketing system could NOT perform an identical function in the same manner as claimed in claims 1, 22, and 28. Talluri merely uses generic terms (e.g., "itinerary demand", etc.) that have existed in the industry for a long time to describe a new way of allocating multiple resources. Talluri does not appear to be concerned with how to solve RM problems via a generic RM data model and thus it would seem to be quite a stretch to hold that Talluri teaches identical elements of a generic RM data model, arranging the claim elements in exactly the same way, and performing an identical function in the same manner as claimed in claims 1, 22, and 28. Furthermore, the term "demand" used in Talluri seems to refer to actual requests for a specific flight and does not appear to include or have any attribute of a forecasted demand of expected requests.

Regarding claim 28, the examiner further interprets "mapping revenue management problem data to the database or the memory" as "a means of sending the data to the database for storage" (Office Action, page 5, paragraph 7). Applicant respectfully disagrees. The interpretation did not include the claim limitation of "according to the generic revenue management data model". As recited in claim 28, the RM problem data is mapped to a tangible storage medium "according to the generic revenue management data model." In other words, the RM problem data is decomposed into different data representations and correspondingly stored *in accordance with* particular data structures of a generic RM data model, as recited in claim 28. Thus, this mapping function is directed to *how* RM problem data can be stored on a tangible storage medium. In this way, multifarious RM problems can be expressed in a uniform format. Advantages of expressing and structuring RM problem data as recited in claims 1, 22, and 28 can be many, as pointed out in the previous reply and in paragraphs [0022]-[0024] of the Specification. Specific teachings and examples can be found in paragraphs [0025]-[0044] of the Specification. Contrastingly, Talluri's teaching of storing all processed reservations in a historical database (col. 5, lines 57-58) does not appear to be concerned with "mapping revenue management

problem data to the database or the memory according to the generic revenue management data model,” as recited in claim 28.

Applicant further respectfully disagrees with the examiner’s statements regarding dependent claims 2-11, 23-27, and 29-31 for similar reasons as discussed above. Applicant would like to point out that lacking the particular logical and structural relationship between elements of a generic RM data model as claimed in claims 1, 22, and 28, Talluri’s airline ticketing system merely meets the terms and could NOT perform identical functions in identical ways as claimed in claims 2-11, 23-27, and 29-31, results notwithstanding.

In view of the foregoing, claims 1, 22, and 28 are not anticipated by Talluri under 35 U.S.C. § 102(e). Accordingly, withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 32-34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Talluri in view of U.S. Patent No. 6,721,714 ("Baiada"). The rejections are respectfully traversed.

Baiada appears to teach a method and system for tactical airline management. Baiada does not appear to be concerned with solving RM problems via a generic RM data model. Figure 8 of Baiada depicts a flow chart of an airline's operations associated with a particular aircraft. In one of those operations, the method of Baiada assigns specific cornerpost arrival time to a particular aircraft so it can speed up or slow down accordingly, *Id.* Contrary to the examiner's statement, Applicant cannot find anywhere in Baiada, including Figure 8 and corresponding col. 13, lines 48-53, "how the airline management system functions and how the various resources are affected and how they effect the optimization of the system" (Office Action, page 9, paragraph 9).

Claims 32-34 depend on claim 31. In rejecting claim 31, the examiner cited col. 5, lines 11-16, of Talluri in which Talluri teaches that the threshold lookup tables separate the optimization modules and the reservation-acceptance modules. However, Applicant cannot find anywhere in Talluri that teaches how to 1) split problem information into the RM problem data and optimization sequence data; and 2) based on the optimization sequence data, apply one or more RM programs to the RM problem data stored in the generic RM data model to "derive an optimal network-wide solution for the network," as recited in claim 31. Consequently, the alleged combination of Talluri and Baiada does not teach how to decompose the network to determine "how the optimal network-wide solution affects individual local resources", as recited in claim 32. For similar reasons, the alleged combination of Talluri and Baiada fails to teach "a fifth data structure for storing a representation of demands placed on the individual local resources," as recited in claim 33 and "applying at least one revenue management program to the revenue management problem data stored in the generic revenue management data model to derive one or more locally optimal solutions," as recited in claim 34.

Applicant further disagrees with the examiner's statement that Baiada teaches that "it is known that a generic revenue management data model further comprises a

fifth data structure for storing a representation of demands placed on the individual local resources," citing col. 4, lines 28-41, and Figure 8 of Baiada. Applicant cannot find such a teaching anywhere in Baiada. At the time the invention was made, the claimed generic revenue management data model was not known. The alleged combination of Talluri and Baiada does not amount to any known generic revenue management data model comprising particular data structures logically arranged in the same manner as recited in claims 1-12 and 22-34.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Since not all the claim limitations of claims 32-34 are taught or suggested by Talluri and Baiada, no *prima facie* case of obviousness has been established.

Applicant further respectfully submits that embodiments of the invention as claimed in claims 1-12 and 22-34 achieve technical advantages not reached by applicable prior art of record (*see, e.g.*, page 5, paragraph [0020], page 6, paragraph [0022], and page 10, paragraph [0036] of the Specification).

In view of the foregoing, claims 32-34 are submitted to be patentable over Talluri and Baiada under 35 U.S.C. § 103(a). Accordingly, withdrawal of this rejection is respectfully requested.



Conclusion

Applicant has now made a bona fide attempt to place the present application in condition for allowance. Favorable consideration and a Notice of Allowance of all pending claims 1-12 and 22-34 is therefore respectfully solicited. Other than as explicitly set forth above, this reply does not include any acquiescence to statements, assertions, assumptions, conclusions, or any combination thereof in the Office Action. The Examiner is invited to telephone the undersigned at the number listed below for discussing an Examiner's Amendment or any suggested actions for accelerating prosecution and moving the present application to allowance.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3183 of Sprinkle IP Law Group.

Respectfully submitted,

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